

REMARKS

The present invention relates to a woven or knitted or fabric containing two different types of yarns and to clothing containing the fabric.

In the Office Action dated January 12, 2009, at page 2 the Examiner indicated that the specification had not been amended with respect to Fig. 15(A) and with respect Fig. 16(A) and 16(B) with respect to certain items. The Examiner indicated that in reply corrected drawing sheets should be submitted or the specification should be amended to refer to the characters in the description in compliance with 37 C.F.R. § 1.121(b).

At pages 3-8, the Examiner rejected claims 1-5, 7, 9, 12, 16, and 18-20 under 35 U.S.C. § 103(a) based on Doi et al (USP 6,403,216) in view of DuFour (USP 4,500,679); at pages 9-11, claims 6 and 13 were rejected under 35 U.S.C. § 103 based on Doi et al in view of DeFour, further in view of Chesebro, Jr. (USP 5,095,548); at page 11-13, claims 10, 11, and 21-24 were rejected under 35 U.S.C. § 103(a) based on Doi et al in view of DuFour, further in view of Dawson (USP 6,770,579); lastly, at page 13, claims 14 and 15 were rejected under 35 U.S.C. § 103(a) based on Doi et al in view of DuFour further in view of Safrit (USP 4,341,096).

Claims 1-24 were also provisionally rejected for non-statutory obviousness-type double patenting over claims 1-20 of the co-pending application number 10/548,630. Since this

rejection is provisional, it is respectfully submitted that it should be held in abeyance until either the present application or the cited application issues as a U.S. Patent.

With respect to the drawings, Applicant has amended the specification herein, particularly at pages 14 and 39, to provide a more detailed description of the drawing figures mentioned at page 2 by the Examiner. In view thereof, it is respectfully submitted that the objection to the drawings should now be withdrawn, and that no corrective drawing sheets should be necessary.

Regarding the claim amendments, claim 1 has been extensively amended, including the incorporation from claim 2, which accordingly has been canceled. The dependency of claim 3 has also been amended.

Applicant respectfully submits, that in view of the amended claims herein, and the further detailed discussion below regarding the cited art references vis-à-vis the important features of the presently claimed invention, it will be seen that the presently claimed invention is unobvious and patentable over all of the cited art of record.

The woven or knitted fabric as claimed in the currently amended claim 1 has the following features.

Feature (A): The woven or knitted fabric contains high water-absorbing, self-elongating yarns (1) and low water-absorbing, self-elongating yarns (2).

Feature (B): the high water-absorbing and self-elongating yarns (1) have a self-elongation of +5% or more and the low water-absorbing, self-elongating yarns (2) have a self-elongation lower than +5%, determined by the measurement as defined in item (1) of the amended claim 1.

Feature (C): The yarn (1) is constituted from polyetherester fibers formed from polyetherester elastomer comprising hard segments comprising polybutylene terephthalate blocks and soft segments comprising polyoxyethylene glycol blocks having a number average molecular weight of 1,000 to 6,000, the ratio by mass of the hard segments to the soft segments in the polyetherester elastomer being in the range of from 30/70 to 70/30.

Feature (D): when the yarns (1) and (2) are arranged in the same direction as each other in the test fabric piece as defined in the amended claim 1, a ratio of the mean length (A) of the yarns (1) measured under the specific load as defined in the amended claim 1 to the mean length (B) of the yarns (2) measured under the specific load as defined in the amended claim 1 satisfies the requirements:

$$A/B \leq 0.9.$$

The combination of features (A), (B), (C) and (D) altogether enables the resultant woven or knitted fabric to exhibit a characteristic performance such that when the fabric is wetted with water, the opening area of the fabric increases to increase the air-permeability of the fabric and when the fabric is dried, the opening area of the fabric decreases to decrease the air-permeability of the fabric, while the change in dimensions and configuration of the fabric is minimized.

Therefore, the woven or knitted fabric of the present invention is useful as a clothing fabric, particularly for underwears or sportswears, because the air-permeability of the fabric increases upon wetting with water although the change in dimensions thereof is relatively small. Also, the woven or knitted fabric of the present invention containing two different types of yarns does need not include expensive conjugated fibers or special processed yarns, and thus is suitable for practical use.

U.S. Patent 6,403,216 (Doi et al.)

Doi discloses a moisture-absorbable synthetic fiber having an improved moisture-releasing property, a high elongation and a high stretch-recovery. The synthetic fiber of Doi includes polyurethane type synthetic fiber or polyether-ester type synthetic fiber. Also, Doi teaches, in column 13, lines 39 to 47, a polyether-ester type synthetic fiber having hard segment including, for example, aromatic polyester such as polytetramethylene terephthalate, polytrimethylene terephthalate or polyethylene terephthalate and soft segment including, for

example, aliphatic polyether glycol such as polytetramethylene glycol or polypropylene glycol, and aliphatic polyester glycol composed of adipic acid and 1,6-hexanediol or azelaic acid and 3-methyl-1,5-pentanediol.

Doi is quite silent as to the polyetherester elastomer fiber having polybutylene terephthalate hard segments and polyethylene glycol soft segments having a number average molecular weight of 1,000 to 6,000, in a hard segment/soft segment mass ratio of 30/70 to 70/30, usable for the present invention.

It must also be noted that no polyetherester elastomer fiber is produced or used in examples 1 to 17 of Doi.

Doi teaches, in the ABSTRACT, as follows:

The synthetic fiber maintains a high strength at break of an elastic fiber component thereof also in the state of having absorbed moisture, is excellent in color fastness to rubbing, and can be used for manufacturing a stretch fiber fabric rodect excellent in comfort throu«h blending with another fiber material. The synthetic fiber can be produced by incorporating a water absorption resin having a water absorption ratio in a range from 500 to 4000% by weight into an elastic fiber such as a polyurethane fiber or a polyurethane-urea fiber in a finely

dispersed state in an amount in a range from 1 to 15% by weight relative to a fiber-forming polymer.” (emphasis added)

Also, Doi teaches, in column 14, line 58 to column 15, line 3, as follows.

“The synthetic fiber according to the present invention may be mixed with other materials in accordance with the use thereof, in which there is no limitation in kind, form and size thereof. For example, the material includes natural fiber represented by cotton, wool or rammie, regenerated fiber represented by viscose rayon or cuprammonium rayon, synthetic fiber represented by polyester or nylon and, further, elastic fiber having no moisture absorbability. A spun yarn mixedly spun with natural fiber represented by cotton or other fibers, an entangled mixed yarn (mixed with fibers having a different shrinkage or a high-strength), a twisted union yarn, a composite false-twisted yarn or a double-feed type air-jet textured yarn may be used.”

Namely, Doi teaches that the moisture-absorbing and releasing synthetic fibers can be mixed with other type of fiber to form a mixed fiber material, for example, mixed fiber yarns. However, Doi does not teach or suggest a woven or knitted fabric formed from two different types of yarns, namely the yarns (1) having high water-absorbing and self-elongating property and the yarns (2) having low water-absorbing and self-elongating property, when wetted with water, namely feature (A) of the present invention.

Further, Doi is quite silent as to features (B) and (C) of the present invention, and thus does not teach or suggest the polyether elastomer fibers having a self-elongation of +5% or more when wetted with water. Furthermore, Doi is quite silent as to feature (D) of the present invention.

Still furthermore, Doi does not teach or suggest the specific advantages derived from the combination of features (A) to (D) altogether.

U.S. Patent 4,500,679(DuFour)

DuFour discloses a molding resin composition comprising a blend of (A) thermoplastic copolyetherester elastomer, (B) a styrene-nucleic anhydride polymer and (C) and ABS or MBS polymer. The thermoplastic copolyetherester elastomer (A) comprising an etherester soft segments derived from a Bifunctional polyether glycol and a dicarboxylic acid and a ester hard segments derived from organic dial and aromatic dicarboxylic acid. The ester hard segments is preferably a polyethyleneterephthalate or a polytetramethylene terephthalate. DuFour is quite silent as to the hard segments formed from polybutylene terephthalate blocks and the soft segments formed from polyoxyethylene glycol blocks (Feature (C) of the present invention). Also, DuFour does not teach or suggest the water-absorbing and self-elongating elastomer usable for the yarns (1) of the present invention.

Combination of Doi with DuFour

Please note again that no polyetherester elastomer fiber is produced or used in Examples 1 to 17 of Do. Thus, Doi cannot teach or suggest the specific water-absorbing, self-elongating property and the specific advantages of the polyetherester elastomer fiber yarns (1) of the present invention.

Also, DuFour is quite silent as to the fiber yarns formed from the thermoplastic polyetherester elastomer (A) of DuFour and thus cannot teach or suggest the specific water-absorbing, self-elongating property and the specific advantages of the polyetherester elastomer fiber yarns (1) of the present invention.

Thus, there is no motivation of the combination of Doi with DuFour to teach or suggest the specific water-absorbing, self-elongating elastomer fiber yarns (1), without learning the present invention.

Even if Doi is combined with DuFour, the combination does not teach the woven or knitted fabric of the present invention having Features (A), (B), (C) and (D) and the specific advantages of thereof.

Namely, when Doi is combined with DuFour, the resultant polyetherester elastomer is constituted from a hard segments formed from polytetramethylene terephthalate,

polytrimethylene terephthalate or polyethylene terephthalate, but not polybutylene terephthalate and a soft segments formed from polytetramethylene glycol, polypropylene glycol, aliphatic polyester glycol or a etherester copolymer derived from a difunctional polyetherglycol and a dicarboxylic acid, but not polyoxyethylene glycol.

Neither of Doi and DuFour teaches or suggests the specific water-absorbing, self-elongating polyetherester elastomer fiber yarns (1) as defined by Feature (C) of the present invention as defined by the amended claim 1.

Accordingly, no combination of Doi with DuFour can render obvious of the woven or knitted fabric as claimed in amended claim 1 above.

U.S. Patent 5,095,548 (Chesebro)

Chesebro discloses a sock containing hydrophobic yarns and a hydrophilic yarns. Chesebro, however, does not teach or suggest the polyetherester elastomer fiber yarns (1) defined by feature (C), having the water-absorbing, self-elongating property defined by Feature (B) and contained, as an indispensable component, in the woven or knitted fabric provided with Feature (D) of the amended claim 1 of the present invention. Also, Chesebro does not teach or suggest the specific advantages of the present invention.

Accordingly, even if Chesebro is combined with Doi and DuFour, the combination cannot teach or suggest the woven or knitted fabric of the present invention characterized by the combination of Features (A), (B), (C) and (D) of amended claim 1 above.

U.S. Patent 6,770,579 B1 (Dawson et al.)

Dawson discloses a smart film or material comprising a layer (1) and humidity sensitive discrete areas (2) formed in the surface of the layer (1) and having a hydrophilic property different from that of the layer (1).

Dawson is, however, quite silent as to the polyetherester elastic fiber yarns (1) defined by Feature (C), having the water-absorbing, self-elongating property as defined by Feature (B), and contained, as an indispensable component, in the woven or knitted fabric provided with Features (A) and (D) of the amended claim 1 of the present invention. Also, Dawson does not teach or suggest the specific advantages of the present invention.

Accordingly, even if Dawson is further combined with Doi, DuFour and Chesebro altogether, this combination cannot teach or suggest the woven or knitted fabric of the present invention characterized by the combination of Features (A), (B), (C) and (D) of amended claim 1 above.

U.S. Patent 4,341,096 (Safrit et al.)

Safrit discloses a triple layer knitted fabric having improved cushioning and moisture-absorbing characteristics. In the triple layers of the knitted fabric, inside and outside layers are formed from a hydrophobic yarn and an intermediate layer is formed from a hydrophilic yarn.

Safrit, however, does not teach or suggest the specific polyetherester elastomer fiber yarns (1) defined by feature (C), having the water-absorbing, self-elongating property defined by Feature (B) and contained, as an indispensable component, in the woven or knitted fabric provided with Feature (D) of the amended claim 1. Also, Safrit does not teach or suggest the specific advantage of the woven or knitted fabric derived from the combination of Features (A), (B), (C) and (D) of the amended claim 1 altogether.


Thus, even if Safrit is combined with Doi and DuFour, this combination cannot teach or suggest the woven or knitted fabric of the present invention characterized by the combination of Features (A), (B), (C) and (D) together.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local Washington, D.C. telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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Date: May 12, 2009